

Serial No. 09/373,704  
Amdt. dated October 14, 2003  
Reply to Office Action of July 15, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1-5 (Canceled)

6. (Currently Amended) A method of increasing a switch capacity in a switch network system in which three or more switch stages including a plurality of switching elements are connected in serial by using a predetermined logical circuit, the method comprising the steps of:

adding switching elements to an intermediate switch stage which is placed between the first stage and last stage, respectively; and

connecting extra input/output terminals of switching elements in first and last switch stages with the added switching elements, respectively, wherein the first switch stage includes switching elements of which ratio of the number of input/output is 1.5 times of  $n \times 2n$ , wherein  $n$  is defined as the number of input of the switching elements and  $N$  is defined as a whole capacity of the switch network.

7. (Canceled)

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8. (Currently Amended) The method of increasing a switch capacity as claimed in claim 6, wherein the each switch element of the intermediate switch stage is connected to the switching elements of the first and last switch stages, the switching elements of the intermediate switch stage having the number of input/output of  $N/n \times N/n$ , wherein  $n$  is the number of inputs of the switching elements and  $N$  is a capacity of the switch network.

9. (Currently Amended) A method of increasing a switch capacity in a switch network system in which three or more switch stages including a plurality of switching elements, the method comprising:

adding switching elements to an intermediate switch stage which is placed between the first stage and last stage, respectively; and

connecting extra input/output terminals of switching elements in first and last switch stages with the added switching elements, respectively. ~~The method of increasing a switch capacity as claimed in claim 6,~~ wherein the each switch element of the intermediate switch stage is connected to respective switching element of the intermediate switch terminal, the switching elements of the intermediate switch stage having the number of input/output of 1.5 times of  $2n \times n$ .

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10. (Currently Amended) A method of increasing a switch capacity in a switch network system in which three or more switch stages including a plurality of switching elements, the method comprising:

adding switching elements to an intermediate switch stage which is placed between the first stage and last stage, respectively; and

connecting extra input/output terminals of switching elements in first and last switch stages with the added switching elements, respectively. ~~The method of increasing a switch capacity as claimed in claim 6, wherein if switching elements are added to the switch stage of the switch network system, thereby the added switch capacity is increased by the unit of 1.5 times of  $2^N$ .~~

11. (Original) The method of increasing a switch capacity as claimed in claim 6, wherein the connecting is carried out by changing an access port of input/output terminals of the respective switching elements.

12. (Original) The method of increasing a switch capacity as claimed in claim 6, wherein the switching elements are added by the unit of module.

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13. (New) A method of increasing a switch capacity in a switch network system, the method comprising:

adding a switch including a plurality of switching elements to an intermediate switch stage, wherein the number of input/output of the intermediate switch stage is increased by 1.5 times; and

using additional inputs in a first switch stage and additional output in a last switch stage, wherein the additional inputs in the first switch stage and the additional outputs in the last switch stage were unused prior to increasing the switch capacity and wherein used inputs in the first stage and used outputs in the last stage are increased by 1.5 times.

14. (New) The method of claim 13, wherein the switching elements of the first switch stage and last switch stages are each grouped in pairs.

15. (New) The method of claim 13, wherein each switch element of the intermediate stage is connected to switching elements of the first switch stage and last switch stage.

16. (New) The method of claim 13, wherein the switching elements of the intermediate switch stage have  $N/n$  inputs and  $N/n$  outputs, wherein  $n$  is the number of inputs of the switching elements and  $N$  is a capacity of the switch network.

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17. (New) The method of claim 13, wherein a total number of inputs of each switching element of the first switch stage are predetermined and wherein used inputs are increase by 1.5 times for each switching element of the first switch stage.

18. (New) The method of claim 13, wherein a total number of outputs of each switching element of the last switch stage are predetermined and wherein used outputs are increase by 1.5 times for each switching element of the last switch stage.